CLAIMS

1. A reagent for use in immunoassays, comprising:

a plurality of particles;

each of said particles comprising a surface having been activated by a carbodiimide;

a binding agent linked to the surface through a covalent bond; and

a tertiary amine compound of formula (I)

$N(R^1\text{-}X)(R^2\text{-}Y)(R^3\text{-}Z)$ (I);

wherein R^1, R^2, and R^3 are independently selected from the group consisting of alkyl and alkyl ether; and

X, Y, and Z are independently selected from the group consisting of –OH, -O-R^4, -S-R^4, –C(=O)-OH, –C(=O)-OR^4, or –C(=O)-NHR^4, wherein R^4 is alkyl.

2. The reagent of claim 1, wherein R^1, R^2, R^3 and R^4 are independently alkyl groups comprising from 1 to 5 carbon atoms.

3. The reagent of claim 1, wherein X, Y, and Z are independently selected from the group consisting of –OH and -O-R^4.

4. The reagent of claim 1, wherein

R^1, R^2, and R^3 are independently alkyl groups comprising from 1 to 5 carbon atoms; and

X, Y, and Z are –OH.

5. The reagent of claim 1, wherein the tertiary amine compound is triethanolamine.

6. The reagent of claim 1, wherein the reagent forms an assay mixture when mixed with a sample; and

wherein the tertiary amine compound is present in the assay mixture in a concentration of 50 mM or less.

7. The reagent of claim 6, wherein the tertiary amine compound is present in the assay mixture in a concentration of 25 mM or less.

8. The reagent of claim 6, wherein the tertiary amine compound is present in the assay mixture in a concentration of 12.5 mM or less.

9. The reagent of claim 6, wherein the tertiary amine compound is present in the assay mixture in a concentration of 5 mM or less.

10. The reagent of claim 1, wherein the particles further comprise the reaction product of a succinimide ester and a primary amine compound on the surface.

11. The reagent of claim 10, wherein the primary amine compound is selected from the group consisting of glycine ethyl ester; 2-(aminoethoxy)ethanol; 2,2'-(ethylenedioxy)bisethylamine; and 4,7,10-trioxa-1,3-tridecanediamine.

12. The reagent of claim 1, wherein the plurality of particles and the tertiary amine compound are present in a single liquid mixture.

13. A reagent for use in immunoassays, comprising:

a plurality of particles;

each of said particles comprising a surface having been activated by a carbodiimide;

a binding agent linked to the surface through a covalent bond; and

a tertiary amine compound of formula (II)

$N(R^1\text{-}OH)(R^2\text{-}OH)(R^3\text{-}OH)$ (II);

wherein R^1, R^2, and R^3 are independently alkyl groups comprising from 1 to 5 carbon atoms;

wherein the reagent forms an assay mixture when mixed with a sample, such that the tertiary amine compound is present in the assay mixture in a concentration of 50 mM or less.

14. The reagent of claim 13, wherein the tertiary amine compound is triethanolamine.

15. The reagent of claim 13, wherein the particles further comprise the reaction product of a succinimide ester and a primary amine compound on the surface;

wherein the primary amine is selected from the group consisting of glycine ethyl ester; 2-(aminoethoxy)ethanol; 2,2'-(ethylenedioxy)bisethylamine; and 4,7,10-trioxa-1,3-tridecanediamine.

16. The reagent of claim 13, wherein the plurality of particles and the tertiary amine compound are present in a single liquid mixture.

17. An assay method for determining an analyte, comprising:

combining a sample suspected of containing said analyte with the reagent of claim 1,

the reagent comprising the antibody of said analyte, and the reagent capable of forming a detectable complex with said analyte; and

determining the presence or amount of said detectable complex as a measure of said analyte in said sample.

18. An assay method for determining an analyte, comprising:

combining a sample suspected of containing said analyte with the reagent of claim 4,

the reagent comprising the antibody of said analyte, and the reagent capable of forming a detectable complex with said analyte; and

determining the presence or amount of said detectable complex as a measure of said analyte in said sample.

19. An assay method for determining an analyte, comprising:

combining a sample suspected of containing said analyte with the reagent of claim 6,

the reagent comprising the antibody of said analyte, and the reagent capable of forming a detectable complex with said analyte; and

determining the presence or amount of said detectable complex as a measure of said analyte in said sample.

20. An assay method for determining an analyte, comprising:

combining a sample suspected of containing said analyte with the reagent of claim 13,

the reagent comprising the antibody of said analyte, and the reagent capable of forming a detectable complex with said analyte; and

determining the presence or amount of said detectable complex as a measure of said analyte in said sample.

21. A test kit, comprising the reagent of claim 1.

22. A test kit, comprising the reagent of claim 4.

23. A test kit, comprising the reagent of claim 6.

24. A test kit, comprising the reagent of claim 13.

25. In an immunoassay method wherein a sample suspected of containing an analyte is combined with a plurality of particles, each of said particles having a surface having been activated by a carbodiimide, and a binding agent bound to the surface through a covalent bond; the improvement comprising:

adding to the sample, to form an assay mixture, a tertiary amine compound of formula (I)

$$N(R^1\text{-}X)(R^2\text{-}Y)(R^3\text{-}Z) \qquad (I);$$

wherein R^1, R^2, and R^3 are independently selected from the group consisting of alkyl and alkyl ether; and

X, Y, and Z are independently selected from the group consisting of –OH, -O-R^4, -S-R^4, –C(=O)-OH, –C(=O)-OR^4, or –C(=O)-NHR^4, wherein R^4 is alkyl.

26. The method of claim 25, wherein

R^1, R^2, R^3 and R^4 are independently alkyl groups comprising from 1 to 5 carbon atoms; and

X, Y, and Z are –OH.

27. The method of claim 25, wherein the tertiary amine compound is present in the assay mixture in a concentration of 50 mM or less.

28. The method of claim 25, wherein the adding to the sample comprises:

combining the tertiary amine with the particles to form a particle mixture; and

combining the particle mixture with the sample.